

**ORDINANCE NO. (O)22-03**

**AN ORDINANCE OF THE TOWN OF ORO VALLEY, ARIZONA, AMENDING THE ENVIRONMENTALLY SENSITIVE LANDS ZONING MAP AS DEPICTED IN EXHIBIT “A” AND REPEALING ALL RESOLUTIONS, ORDINANCES AND RULES OF THE TOWN OF ORO VALLEY IN CONFLICT THEREWITH; PRESERVING THE RIGHTS AND DUTIES THAT HAVE ALREADY MATURED AND PROCEEDINGS THAT HAVE ALREADY BEGUN THEREUNDER**

**WHEREAS**, on February 16, 2011, the Town Council approved Ordinance No. (O) 11-01, which adopted the “Environmentally Sensitive Lands” and “Environmentally Sensitive Lands Zoning Map” of the Oro Valley Zoning Code Revised; and

**WHEREAS**, Applicant Town West Realty, is requesting an amendment to the Environmentally Sensitive Lands Zoning Map (CRA) for the Oro Valley Marketplace Property, as shown in Exhibit “A” attached hereto; and

**WHEREAS**, Applicant hired RECON Environmental to perform field surveys of the area, the same Environmental company hired by the Town to create the original Environmentally Sensitive Lands Zoning Map; and

**WHEREAS**, the Planning and Zoning Commission held a duly noticed Public Hearing on January 6, 2022 and voted to recommend approval to the Town Council

**WHEREAS**, the Town Council has duly considered the Applicant’s proposal for an amendment to the Environmentally Sensitive Land Zoning Map.

**NOW, THEREFORE, BE IT ORDAINED** by the Mayor and Council of the Town of Oro Valley, Arizona that:

**SECTION 1.** The Council Hereby adopts the amendment to the Environmentally Sensitive Lands Planning Map as depicted in Exhibit “B”.

**SECTION 2.** The effective date of the Environmentally Sensitive Lands Zoning Map amendment shall be thirty days after the adoption of this Ordinance by the Town Council.

**SECTION 3.** All Oro Valley Ordinances, Resolutions, or Motions and parts of Ordinances, Resolutions or Motions of the Council in conflict with the provisions of this Ordinance are hereby repealed.

**SECTION 3.** If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held to be invalid or

unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions thereof.

**PASSED AND ADOPTED** by Mayor and Town Council of the Town of Oro Valley, Arizona, this 2<sup>nd</sup> day of November, 2022.

**TOWN OF ORO VALLEY**

\_\_\_\_\_  
Joseph C. Winfield, Mayor

**ATTEST:**

**APPROVED AS TO FORM:**

\_\_\_\_\_  
Michael Standish, Town Clerk

\_\_\_\_\_  
Tobin Sidles, Legal Services Director

# **Exhibit “A”**

# Oro Valley Village Center

Southwest Corner of Oracle Road  
and Tangerine Road  
Oro Valley, AZ

## Environmentally Sensitive Lands Ordinance Amendment

Prepared For:

Town West  
555 E. River Road, Suite 201  
Tucson, Arizona 85704

Prepared By:

The WLB Group, Inc.  
Robert G. Longaker III, PLA, AICP  
Director of Planning  
4444 East Broadway Boulevard  
Tucson, Arizona 85711  
(520) 881-7480

WLB Job No. 185050-WT-03  
May 26, 2020  
Revised December 16, 2021



## **A. Introduction**

This application is to request a map amendment to the Environmentally Sensitive Lands Ordinance (ESLO) for the Oro Valley Village Center project (formerly known as Oro Valley Marketplace). This application is being submitted in conjunction with a proposed amendment to the Rancho Vistoso Planned Area Development (PAD) and a revised Conceptual Site Plan (CSP).

This ESLO map amendment is specific to an approximately 4-acre man-made drainage area in the northeastern portion of the site that is currently designated under ESLO as a Critical Resource Area (CRA). This request is to amend the ESLO map designation for this area from CRA to Resource Management Area 3 (RMA 3) since the subject property is located within the Tier 1 Growth Area identified on the General Plan Land Use Map.

Recon Environmental, Inc. was hired to evaluate this area and their report can be found at the rear of this report. The following is an excerpt from the Recon report and summarizes their findings:

### *Assessment Results*

*Prior to 2008, the study area did not contain a wash or associated significant vegetation. As previously mentioned, as part of development of the retail project, the study area was graded, developed into a stormwater channel, and revegetated with native species. The native vegetation established well and the study area now meets the criteria for xeroriparian habitat based on total vegetation volume as listed in Table 1, as well as other riparian function indicators. The study area includes a wash/drainage channel having banks and beds through which water flows periodically.*

*In addition, the study area meets the criteria for minor wildlife linkage based on the evidence of wildlife use through the drainage area, including use of culverts under minor and major roadways to the north and south. The study area wildlife linkage connects open space and CRA areas north of Tangerine Road with open space areas south of the Village Center and to Big Wash, a designated Major Wildlife Linkage under the ESL. There are other wildlife linkages located approximately 0.5 mile to the east and west of the study area; however, the study area provides an important link for wildlife that may be isolated within the open space between Oracle Road on the east and development along Innovation Park Road to the west.*

*Based on the findings that the study area meets the criteria for riparian and minor wildlife linkage, the entire study area meets the criteria for the designation as CRA.*

## **B. Background Information and Justification for ESLO Map Amendment from CRA to RMA 3**

This 4-acre area was originally established based on an open space area designation in the original Rancho Vistoso Planned Area Development. Historically the area did contain a wash or associated significant natural vegetation. The vegetation that exists in this area today was

man-made and installed in 2008 as part of the landscape improvements during the development of the Oro Valley Marketplace. Part of the development of the retail project included a commitment to restore the native vegetation in certain areas, including this area. The type and density of vegetation planted at that time has resulted in growth and maturation of the plants such that it met xeroriparian density criteria of CRA at the time of the creation of the Environmentally Sensitive Lands Ordinance. The Town of Oro Valley designated the study area as a Critical Resource Area after the Environmentally Sensitive Lands Ordinance was established in 2011.

Please refer to *Exhibits A and B* which show aerial photographs from 2006 and 2018 and demonstrate how the site looked prior to development and how it looks in a more recent condition.

The area subject to this amendment was also created to collect on-site stormwater, as well as to convey stormwater from north of Tangerine Road through the development and into Big Wash and the riparian mitigation area southwest of the project.

Also, per Town of Oro Valley ESLO mapping, the subject area is not identified as part of the Major Wildlife Linkage Category.

### **C. Reasons for Requested ESLO Amendment**

This ESLO amendment to RMA 3 (subject property is located within the Tier 1 Growth Area identified on the General Plan Land Use Map) is requested in order to allow the proposed redevelopment of this area. The CRA designation does not permit the uses that are proposed by the redevelopment strategy for property.

The following information provides more detail on the proposed redevelopment strategy for this area.

1. New Property Vision. This project proposes a redevelopment of an approximately 7-acre central open space area (approximately 4 acres of which are designated as CRA). This central open space will be redeveloped as an entertainment district and contain active and passive recreational amenities.

The entertainment district is a key component of the proposed redevelopment of the overall property as a lifestyle center. The facilities and amenities will be available for use by not only future residents of the project, but also the general public.

2. Functional Change of the Area. The existing function of the subject area is for use as open space and to move stormwater through the area, as described earlier in this narrative. There are also walking paths on the perimeter of the area. The CRA designation and its associated requirement that 95% of the area be retained as Environmentally Sensitive Open Space (ESOS) is consistent with this current function.

The proposed function is not only as described in Item 1 above, but this area will continue to provide open space and stormwater conveyance. This area will continue to convey stormwater entering the site from north of Tangerine Road as well as stormwater generated on the site. The stormwater will primarily be conveyed via a storm drain that will be constructed beneath the central and southern portions of the entertainment district area. This will allow for the greatest opportunity to utilize as much of the entertainment district property as possible for the proposed amenities. The drainage in the northern portion of the entertainment district will remain open and will retain existing vegetation.

## EXHIBITS





Tangerine Road

EXISTING  
CRITICAL  
RESOURCE AREA

OV VILLAGE  
CENTER BOUNDARY

Oracle Road







EXISTING  
CRITICAL  
RESOURCE AREA

Tangerine Road

OV VILLAGE  
CENTER BOUNDARY

Oracle Road





## RECON REPORT



*An Employee-Owned Company*

May 4, 2020

Mr. Bryan Eubank  
Vice President of Operations  
Town West Realty  
555 East River Road, Ste. 201  
Tucson, AZ 85704

Reference: Oro Valley Village Center (formerly known as the Oro Valley Marketplace) – Environmentally Sensitive Lands Critical Resource Area Site Assessment (RECON Number 9666)

Dear Mr. Eubank:

Per your request, RECON Environmental, Inc. (RECON) with assistance from Wilder Landscape Architects evaluated an approximately 4-acre man-made drainage area (study area) within the Oro Valley Village Center development located at Oracle Road and Tangerine Road in Oro Valley, Arizona. The corridor is currently mapped as a Critical Resource Area (CRA) per the Town of Oro Valley's Environmentally Sensitive Lands (ESL) Zoning Code Section 27.10 D.3.b (Figure 1; all figures referenced in this report are included in Attachment 1).

### ***General Site Conditions***

The Oro Valley Village Center and study area are located in the southeastern portion of the Rancho Vistoso Planned Area Development Zone. Prior to 2008 and based on a review of historical aerial photographs, the study area did not previously contain a wash or associated significant natural vegetation. Part of the development of the retail project included a commitment to restore the native vegetation in certain areas, including the study area. The study area was graded in 2008 and developed to collect on-site stormwater, as well as stormwater from north of Tangerine Road, to be directed through the development and into Big Wash and the mitigation area south of the Oro Valley Village Center. The study area location was originally established based on an open space area designation in the original Rancho Vistoso Planned Area Development. The study area was contour graded and vegetated with native species based on Town of Oro Valley guidelines. Since 2008, the vegetation established well and vegetation densities meet xeroriparian volumes. The Town of Oro Valley designated the study area as a Critical Resource Area after the Environmentally Sensitive Lands Ordinance was established in 2011.

Within the Oro Valley Village Center, the study area is currently located between developed and paved areas to the east and west, Tangerine Road to the north, and the internal Village Center access road to the south (see Figure 1). The study area is bisected by two access roads connecting the Village Center businesses. There is a large concrete drainage feature (concrete culverts, terraced concrete channels, and rock rip-rap channels) in the northern portion of the study area (Figure 2).

Big Wash, designated as a Major Wildlife Linkage under the ESL, is located south of the Village Center access road. An area zoned as Open Space and four areas designated as Critical Resource Areas are located north of the study area and north of Tangerine Road (see Figure 1).

Elevation of the study area ranges from 2,660 to 2,680 feet. Drainage within the study area is from north to south, starting at the culverts under Tangerine Road, through the drainage feature and terraces located in the northern portion of the study area (see Figure 2). Drainage continues through the central portion of the study area, consisting of a single channel that is braided in the northern and central sections and more incised in the



southern section. The drainage continues into culverts at the southern section, running underneath the Village Center access road to an open space area and eventually into Big Wash (see Figure 1).

### ***Vegetation in the Study Area***

#### *Native Species*

The study area is within the Arizona Upland Subdivision of the Sonoran Desertscrub biotic community. The study area was completely graded in 2008 during the construction of the Oro Valley Village Center, which was developed prior to the ESL code. The study area was mapped as Xeroriparian B habitat prior to the development and was mitigated off-site (west of the Village Center access road). The wash that flowed through the study area (flow from the north through a concrete drainage structure under Tangerine Road to Big Wash to the south) was narrowed and revegetated as open space as part of the development plan. The current drainage width varies from 100 to 150 feet through the study area.

Planting (container plants and seeding) of the study area occurred in the second half of 2008 and irrigation was used to establish the plant material. It is assumed that the landscape is no longer irrigated (typically planted areas are irrigated for no more than five years). Prevalent tree species include whitethorn acacia (*Vachellia constricta*), velvet mesquite (*Prosopis velutina*), and blue paloverde (*Parkinsonia florida*). Desert willow (*Chilopsis linearis*), foothill paloverde (*Parkinsonia microphylla*), and catclaw acacia (*Senegalia greggii*) are present in smaller numbers.

The dominant shrubs and sub-shrubs that are established in the study area include cheesebush (*Ambrosia salsola*), fourwing saltbush (*Atriplex canescens*), desert broom (*Baccharis sarothroides*), burroweed (*Isocoma tenuisecta*), and brittlebush (*Encelia farinosa*). Species present in smaller numbers include triangle leaf bursage (*Ambrosia deltoidea*), canyon bursage (*Ambrosia ambrosioides*), turpentine bush (*Ericameria laricifolia*), wolfberry (*Lycium sp.*), and paperflower (*Psilostrophe cooperi*). Forbs include desert senna (*Senna covesii*), globemallow (*Sphaeralcea ambigua*), shaggyfruit pepperweed (*Lepidium lasiocarpum*), and climbing milkweed (*Funastrum cynanchoides*).

The dominant cactus found in the study area was chainfruit cholla (*Cylindropuntia fulgida*). Staghorn cholla (*Cylindropuntia versicolor*), barrel cacti (*Ferocactus wislizenii*), soap tree yucca (*Yucca elata*) and prickly pear (*Opuntia engelmannii*) are all infrequent, and seldom located within the transects.

#### *Invasive Species*

Common invasive species noted within the study area include London rocket (*Sisymbrium irio*), red brome (*Bromus madritensis*), and Mediterranean grass (*Schismus barbatus*). An invasive new to the Tucson area, stinknet (*Oncosiphon piluliferum*), was seen in small quantities in two areas within the study area and manually removed.

### ***Wildlife Found within the Study Area***

The study area was assessed for use as a minor wildlife linkage by searching for signs of wildlife travel through the drainage. Tracts, scat, and evidence of foraging were noted. Species identified using the area include javelina (*Tayassu tajacu*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), desert cottontail (*Sylvilagus audubonii*), desert woodrat (*Neotoma lepida*), also known as pack rats, round-tail ground squirrel (*Xerospermophilus tereticaudus*), Harris's antelope squirrel (*Ammospermophilus harrisi*), kangaroo rats (*Dipodomys spp.*), and desert mice (*Perognathus spp.*).

A variety of bird species were also found within the study area, including Gambel's quail (*Callipepla gambelii*), white winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), Lucy's warbler (*Vermivora luciae*), phainopepla (*Phainopepla nitens*), common raven (*Corvus corax*), cactus wren (*Campylorhynchus brunneicapillus*), northern cardinal (*Carnialis cardinalis*), house sparrow (*Passer domesticus*), hummingbirds (likely costa's or Anna's [*Calypte spp.*]), verdin (*Auriparus flaviceps*), curve-billed

thrasher (*Toxostoma curvirostre*), black-tailed gnatcatcher (*Poliophtila melanura*), rufous-crowned sparrow (*Aimophila ruficeps*), black-throated sparrow (*Amphispizabilineata*), Abert's towhee (*Pipilo aberti*), vermilion flycatcher (*Pyrocephalus rubinus*), and lesser goldfinch (*Carduelis psaltria*).

Wildlife habitat features within the study area include diverse and dense native vegetation used for nesting, foraging, and roosting. Javelina bed-down areas were found under several dense stands of acacia and desert broom. Areas where several boulders were placed as part of the landscape design showed evidence of use by desert woodrats and desert mice. Although no reptiles (snakes and lizards) were observed during the site visit due to the temperature range, habitat for these species occurs throughout the study area and a variety of snakes and lizards are likely to occur.

Wildlife tracks (primarily coyote and javelina) were found throughout the study area. In addition, wildlife tracks were found outside and within culverts located at the north end, central portion, and south end of the study area. Wildlife tracks were also found within the culvert leading to the study area that passes under Tangerine Road as well as at the exit of the culvert located at the southern end of the study area leading to Big Wash.

### **Methods**

RECON senior biologist<sup>1</sup> Susy Morales, with assistance from Jennifer Patton (registered landscape architect) and Ben Wilder (landscape designer/GIS specialist), conducted a site visit and transects on March 28, 2020. At the time of the visit, trees were not yet leafed out. Vegetation volume measurements would have been higher had trees been fully leafed out.

The study area CRA and the extent to which it meets the ESL riparian area criteria as identified in *Town of Oro Valley Zoning Code Addendum G: ESL Resource Science Specifications and Definitions* were evaluated. Specifically, Appendix G, paragraph A defines xeroriparian areas by the presence of both intermittent/ephemeral drainage features and representative vegetation volume of 0.500 cubic meter per square meter ( $\text{cm}^3/\text{m}^2$ ) or greater. Paragraphs D and E also indicate that upland "islands" between braided channels are included as part of the riparian area only if they are less than 200 feet wide, and that mapped riparian areas that contribute drainage connectivity, sediment and nutrient transport, etc. may include areas without representative vegetation volume. In summary, the identification of xeroriparian areas as defined in Appendix G is based on the full site context and riparian function rather than the presence of any single feature or indicator.

Nine transects were conducted to measure Total Vegetation Volume (TVV) within the study area (Figure 3). Per the direction of Appendix G, Paragraph H, the Pima County Regional Flood Control District (PCRFCD) Technical Procedure 116: Quantitative Methods for Regulated Riparian Habitat Boundary Modifications and On-Site Vegetation Surveys was used to determine vegetation volume. The TVV data sheets are presented in Attachment 2. Representative photographs were taken looking downstream and upstream along each transect and at other key viewpoints. Site photographs are included in Attachment 3. Within the nine transects, belt transect sampling as specified in Appendix J, Paragraph 3 (as well as the PCRFCD Technical Procedure 116) was also conducted. Using this method, vegetation is sampled by points at 0.5-meter intervals along the transect to determine density and diversity.

### **Results**

Vegetation within the study area includes riparian facultative species (i.e., more abundant in but not restricted to riparian areas) such as whitethorn acacia, mesquite, and blue paloverde. The results of the TVV transects, presented in Table 1, show that the total vegetation volume within the nine transects are well above the minimum 0.500  $\text{m}^3/\text{m}^2$  threshold for xeroriparian, with a total average vegetative volume measure of 1.48  $\text{m}^3/\text{m}^2$ —three times the minimum 0.500  $\text{m}^3/\text{m}^2$  threshold for xeroriparian. Additionally, the presence

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<sup>1</sup>Qualified Habitat Restoration Specialists per Town of Oro Valley Code Chapter 31.

of distinct channels, sediment deposits, and vegetation debris were noted to indicate hydrologic flow and connectivity, and nutrient/sediment transport.

Table 1 Total Vegetation Volume, Oro Valley Village Center Study Area	
Transect Number	Total Vegetation Volume (m <sup>3</sup> /m <sup>2</sup> )
1	1.404
2	1.892
3	1.420
4	1.140
5	1.188
6	2.528
7	0.772
8	1.236
9	1.736
<b>Total Mean</b>	<b>1.480</b>

For the belt transects, an average vegetation density for the sample area was extrapolated to an acre-density of vegetated area, as shown in Table 2. The study area was found to have a diversity of shrub species, with several in high density, such as cheesebush, fourwing saltbush, desert broom, and brittlebush. Trees with the highest density include whitethorn acacia, blue paloverde, and mesquite.

Table 2 Vegetation Density, Oro Valley Village Center Study Area												
Plant Species		Transect #									Total Density	Average Density
Botanical Name	Common Name	1	2	3	4	5	6	7	8	9		
<b>Trees</b>												
<i>Parkinsonia florida</i>	blue paloverde			1				3	2		6	54.0
<i>Parkinsonia microphylla</i>	foothill paloverde								2		2	18.0
<i>Prosopis velutina</i>	mesquite		2	1	1	1		1	3	2	11	98.9
<i>Senegalia greggii</i>	cactclaw acacia									1	1	9.0
<i>Vachellia constricta</i>	whitethorn acacia	4	10	1	3	1	6	1	13	3	42	377.7
<b>Shrubs / Sub-shrubs</b>												
<i>Ambrosia deltoidea</i>	triangle leaf bursage		2					2			4	36.0
<i>Ambrosia salsola</i>	cheesebush		17	1	3		2	11			34	305.8
<i>Atriplex canescens</i>	fourwing saltbush		4	2	7		2	6		23	44	395.7
<i>Baccharis sarothroides</i>	desert broom	13	7	1	1	8	11		9	14	64	575.6
<i>Encelia farinosa</i>	brittlebush	1	1		22		2	14	4	7	51	458.6
<i>Isocoma tenuisecta</i>	burroweed					1		3	3		7	63.0
<i>Lycium</i> sp.	wolfberry species									8	8	71.9
<i>Psilostrophe cooperi</i>	paperflower									1	1	9.0
<i>Senna covesii</i>	desert senna			1							1	9.0
<b>Cacti</b>												
<i>Cylindropuntia fulgida</i>	chainfruit cholla			1				1		1	3	27.0
<i>Cylindropuntia versicolor</i>	staghorn cholla			1							1	9.0
<i>Opuntia engelmannii</i>	prickly pear							1			1	9.0

Mr. Bryan Eubank  
Page 5  
May 4, 2020

### ***Site Assessment Results***

#### *Zoning Code*

As detailed in the ESL Zoning Code D.3.b, the CRA open space category includes the following environmentally sensitive resources:

- a) Riparian areas and minor wildlife linkages
- b) Major rock outcrops and boulders
- c) Distinctive habitat resource

Riparian areas occur in association with a spring, cienega, lake, water course, river, stream, creek, wash, arroyo, or other body of water, either surface or sub-surface, or any channel having banks and beds through which water flows, at least periodically.

Minor wildlife linkages are composed of upland areas and degraded riparian areas. Degraded areas include hardened drainage ways and constricting drainage structures. These minor links are important in maintaining connectivity within the open space system identified in the ESL.

#### *Assessment Results*

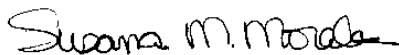
Prior to 2008, the study area did not contain a wash or associated significant vegetation. As previously mentioned, as part of development of the retail project, the study area was graded, developed into a stormwater channel, and revegetated with native species. The native vegetation established well and the study area now meets the criteria for xeroriparian habitat based on total vegetation volume as listed in Table 1, as well as other riparian function indicators. The study area includes a wash/drainage channel having banks and beds through which water flows periodically.

In addition, the study area meets the criteria for minor wildlife linkage based on the evidence of wildlife use through the drainage area, including use of culverts under minor and major roadways to the north and south. The study area wildlife linkage connects open space and CRA areas north of Tangerine Road with open space areas south of the Village Center and to Big Wash, a designated Major Wildlife Linkage under the ESL. There are other wildlife linkages located approximately 0.5 mile to the east and west of the study area; however, the study area provides an important link for wildlife that may be isolated within the open space between Oracle Road on the east and development along Innovation Park Road to the west.

Based on the findings that the study area meets the criteria for riparian and minor wildlife linkage, the entire study area meets the criteria for the designation as CRA.

Thank you again for the opportunity to conduct this CRA site assessment. Please contact us if you have any questions or need any additional information.

Sincerely,



Susy Morales  
Senior Wildlife Biologist/Environmental Planner

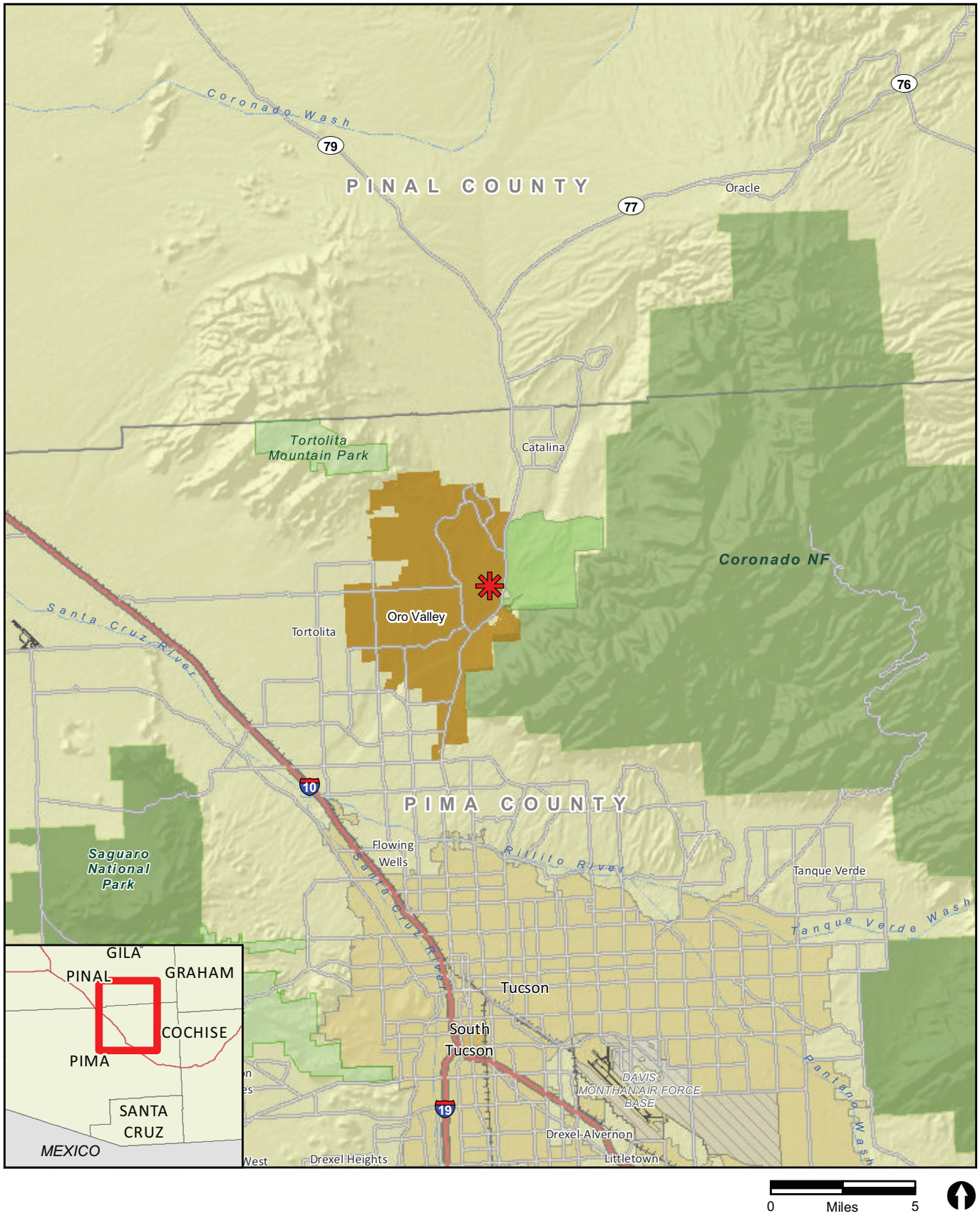
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Attachments

## **ATTACHMENTS**

# **ATTACHMENT 1**

Figures







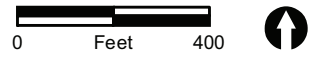
 Project Location

**FIGURE 1**  
Study Area Regional Location



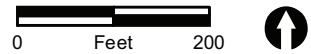
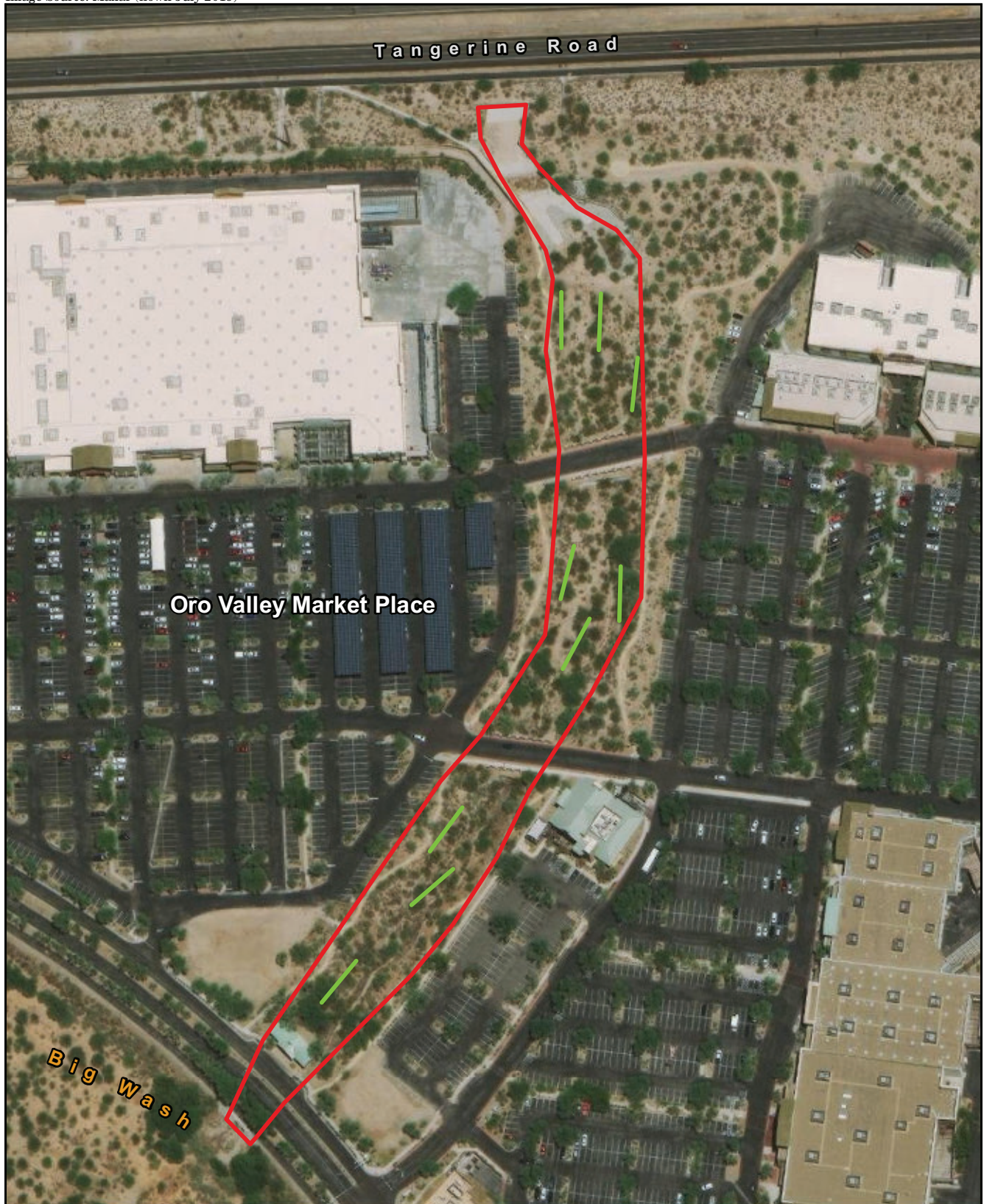




-  Study Area
-  Critical Resource Area
-  Major Wildlife Linkage
-  Resource Management Area Tier 3



**FIGURE 2**  
Study Area





-  Study Area
-  Transect Locations

**FIGURE 3**  
Study Area Transects

## **ATTACHMENT 2**

TVV Data Sheets

# VEGETATION VOLUME DATA SHEET

Location: Northern Center Island  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 1

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	9	10	5	9	2	1	0	9	6	0	0	0	9	1	0	0	2	0	5	3	2	2	5	5	4
2	7	9	4	8	5	1	6	10	9	1	4	8	4	8	3	1	5	4	5	8	0	1	6	6	3
3		1		5			6	10	7	1	4	10	10	10	8	1	10	10	7	9	2			1	4
4								2				1	4	4	2	1	1	4	1						
5																									
6																									
7																									
8																									
9																									
10																									
Total	16	20	9	22	7	2	12	31	22	2	8	19	27	23	13	3	18	18	18	20	4	3	11	12	11

TVV = 1.404

Photos : 1, 2

# VEGETATION VOLUME DATA SHEET

Location: Northern East Bank  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 2

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	5	8	9	8	10	6	4	8	9	5	8	2	5	8	8	7	6	8	0	8	10	7	4	3	10
2	4	6	6	9	2	6	9	7	8	5	0	1	6	8	6	3	6	7	2	4	3	10	8	4	5
3		4		5	5	5	8	6	10	8	2	4	5	3		2	8	8	4			3	7	9	5
4				1	4	4	3	6	7	4	2	3	1					2					9	8	3
5																								4	
6																									
7																									
8																									
9																									
10																									
Total	9	18	15	23	21	21	24	27	34	22	12	10	17	19	14	12	20	25	6	12	13	20	28	28	23

TVV = 1.892  
 Photos : 3, 4

# VEGETATION VOLUME DATA SHEET

Location: Northern West Bank  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 3

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	0	1	8	1	2	0	1	0	1	3	5	7	0	0	1	5	0	1		10	6	3	3	5	1
2	2	6	7	8	4	2	4	0	4	6	8	9	3	5	5	6	7	3		8	3	7	10	10	9
3	6	4	10	5	4	3	6	3	1	5	3	8	6	7	10	10	5			2	6	4	5	4	2
4	4	3			1	2	2	5				3		4	5	3						1			
5	3																								
6																									
7																									
8																									
9																									
10																									
Total	15	14	25	14	11	7	13	8	6	14	16	27	9	16	21	24	12	4	0	20	15	15	18	19	12

TVV = 1.420

Photos : 5, 6

# VEGETATION VOLUME DATA SHEET

Location: Central West Bank  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 4

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	9	4		7	4	2	1	3	3	3	5	4	4	3	1		0	0	1	2	4	8	10	10	4
2				4	3				8	10	7	2	3	0			3	7	2	6	7	4	6	8	6
3									1	6	1	2		0				1	6	6	5	1	4	8	9
4														5				1	2	1	5	3	8	10	5
5																					2	2	7	4	2
6																									
7																									
8																									
9																									
10																									
Total	9	4	0	11	7	2	1	3	12	19	13	8	7	8	1	0	3	9	11	15	23	18	35	40	26

TVV = 1.14  
 Photos : 7, 8

# VEGETATION VOLUME DATA SHEET

Location: Central Center Island  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 5

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	8	4			7	2	2	0	1	0	0	1	2	5	4	3	6	10	6	6	8				2
2	2					2	7	6	5	3	4	6	7	6	4	2	4	5	9	5	3				1
3	2						8	6	9	7	7	6	10	6	5	1	4	9	10	7	2				
4							1				3	7	5	2	2			10	8	2					
5																									
6																									
7																									
8																									
9																									
10																									
Total	12	4	0	0	7	4	18	12	15	10	14	20	24	19	15	6	14	34	33	20	13	0	0	0	3

TVV = 1.188  
 Photos : 9, 10

# VEGETATION VOLUME DATA SHEET

Location: Central West Bank  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 6

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	5	5	2	2	8	4	7	4	0	3	6	8	1	0	2	0	0	2	8	9	5	0	7	7	3
2	7	7	7	8	9	7	7	8	7	6	5	7	6	6	8	8	6	5	7	5	5	3	10	8	4
3	10	8	6	10	7	6	10	10	5	5	8	8	8	10	7	10	9	6	7	8	7	8	10	9	7
4	2	2	3	5		1	10	10	5	7	9	10	5	8		5		8	3	5	4	6	5	4	8
5							5	2	3	6	10	1		2				2		4		5	4		
6																									
7																									
8																									
9																									
10																									
Total	24	22	18	25	24	18	39	34	20	27	38	34	20	26	17	23	15	23	25	31	21	22	36	28	22

TVV = 2.528  
 Photos : 11, 12



# VEGETATION VOLUME DATA SHEET

Location: Southern West Bank  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 7

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)																									
Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	9		8	6	9	6	3	0	3	1	10	5	10	9	9		6	3	8	10	5		1	1	3
2	2					5	8	7	2		2		2		2		2		3	4					
3						10	10	5																	
4						1	3																		
5																									
6																									
7																									
8																									
9																									
10																									
Total	11	0	8	6	9	22	24	12	5	1	12	5	12	9	11	0	8	3	11	14	5	0	1	1	3

TVV = 0.772  
 Photos : 13, 14

# VEGETATION VOLUME DATA SHEET

Location: Southern Center Island  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 8

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)

Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	1	3	3		2	2	2	3	3	0	0	0	4	6	7	4	4		2	3	4	2	3	3	6
2	5	2	2			1	0	3	8	0	0	2	8	9	4	4	4		7	7	6	5	7	9	7
3	4		4			2	2	3	10	4	2	0	5	9	8	7			4	6	2	3	5	6	10
4						3	9	6	0	7	3			5											3
5								5	2	3															
6																									
7																									
8																									
9																									
10																									
Total	10	5	9	0	2	8	13	20	23	14	5	2	17	29	19	15	8	0	13	16	12	10	15	18	26

TVV = 1.236  
 Photos : 15, 16

# VEGETATION VOLUME DATA SHEET

Location: Southern Southwest Bank  
 Oro Valley Marketplace  
 Oro Valley, AZ

Transect No. 9

Date: March 26, 2020

Personnel: Susy Morales, RECON  
 Jennifer Patton, Wilder  
 Ben Wilder, Wilder

Horizontal Transect Samples (# of cubic decimeters containing vegetation within each vertical meter)																									
Vertical cubic meters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	8	2	1	1	9	6	0	1	8	5	2	7	1	4	5	6	7	2	0	6	0	10	5	4	7
2	5	6	5	0	4	5	2	2	4	4	1	0			1	6	8	1	2	0	3	9	0	0	4
3	7	9		2		7	3			6	2	6			8	7	6	2	3	3	3	5	4	1	0
4	8	8										3			7	10	4	7	3	6	7	6	3	5	0
5	2															8	5	2	7	0	7	3	3	2	0
6																		5	4	6	8	4	3	6	5
7																					3	3		5	
8																								3	
9																									
10																									
Total	30	25	6	3	13	18	5	3	12	15	5	16	1	4	21	37	30	19	19	21	31	40	18	26	16

TVV = 1.736  
 Photos : 17, 18

# **ATTACHMENT 3**

Site Photographs



**PHOTOGRAPH 1**  
Transect 1, Facing South



**PHOTOGRAPH 2**  
Transect 1, Facing North





**PHOTOGRAPH 3**  
Transect 2, Facing South



**PHOTOGRAPH 4**  
Transect 2, Facing North





**PHOTOGRAPH 5**  
Transect 3, Facing South



**PHOTOGRAPH 6**  
Transect 3, Facing North





PHOTOGRAPH 7  
Transect 4, Facing South



PHOTOGRAPH 8  
Transect 4, Facing North





PHOTOGRAPH 9  
Transect 5, Facing South



PHOTOGRAPH 10  
Transect 5, Facing North





PHOTOGRAPH 11  
Transect 6, Facing South



PHOTOGRAPH 12  
Transect 6, Facing North





PHOTOGRAPH 13  
Transect 7, Facing South



PHOTOGRAPH 14  
Transect 7, Facing North





PHOTOGRAPH 15  
Transect 8, Facing South



PHOTOGRAPH 16  
Transect 8, Facing North





PHOTOGRAPH 17  
Transect 9, Facing South



PHOTOGRAPH 18  
Transect 9, Facing North





**PHOTOGRAPH 19**  
Southern Culvert over Marketplace Access Road that Leads to  
Open Space and Big Wash



**PHOTOGRAPH 20**  
Javelina Tracks at Southern Culvert to Open Space and Big  
Wash





**PHOTOGRAPH 21**  
Javelina Tracks Inside Southern Culvert to Open Space and Big Wash



**PHOTOGRAPH 22**  
Southern Culvert Facing North from Mitigation Area  
Towards Study Area





**PHOTOGRAPH 23**  
Northern Terraced Drainage Feature, South of Tangerine Road



**PHOTOGRAPH 24**  
Drainage Area from Open Space to North of Tangerine Road  
Connecting to Marketplace and Study Area. Javelina Tracks  
Found in Sandy Bottom and at Culvert Entrances.